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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,600	01/06/2006	Bo Hellman	5170-0105PUS1	4777
2292 7590 01/02/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER LEUNG, PHILIP H	
			ART UNIT 3742	PAPER NUMBER
			NOTIFICATION DATE 01/02/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,600	<b>Applicant(s)</b> HELLMAN, BO	
	<b>Examiner</b> Philip H. Leung	<b>Art Unit</b> 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-8 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "the reaction mixture" at line 6 of claim 1 has no proper antecedent basis.

Correction is required.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being obvious over Fagrell (WO 00/36880) or Di Martino et al (US 5,393,492) (both cited by the applicant), in view of Adams et al (US 6,060,288) (previously cited) or Hirose (JP 4-126060) (newly cited).

Fagrell shows a method or apparatus for performing chemical reactions comprising: supplying substances 1 for a chemical reaction into a reaction chamber (24), which is adapted to withstand high temperature and pressure, applying microwave heating (28) to initiate the

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chemical reaction and reach a desired temperature and, instantaneous cooling the reaction mixture to a desired lower temperature by using cooling (as stated on page 6, lines 19-23; page 17, lines 15-26 and page 28, lines 1-11) (see Figures 1-6 and page 11, line 24 – page 16, line 21). Di Martino also shows a method or an apparatus for performing chemical reactions comprising: supplying substances for a chemical reaction into a reaction chamber (2), which is adapted to withstand high temperature and pressure, applying microwave heating (within a microwave applicator 3A, 3B) to initiate the chemical reaction and reach a desired temperature and, instantaneous cooling the reaction mixture to a desired lower temperature by using cooling (in zone 26B, 26C) (see Figures 1-6 and col. 5, line 32 – col. 12, line 2). Therefore either Fagrell or Di Martino shows every feature as claimed except for the explicit showing that the cooling is adiabatic. Adams shows a chemical reaction process using electromagnetic radiation heating to use rapid cooling by adiabatic cooling to be well known in the art (see col. 14, lines 7-18). Hirose also shows a heating device and process for microwave heating a mixture of solid and a liquid through a pipe 4 by a preheater 5 and a microwave heater 6 and then with a cooling section by adiabatic holding section 7 and 8 (see the Figures and the English abstract). It would have been obvious to an ordinary skill in the art at the time of invention to modify Fagrell or Di Martino to use any well known cooling devices, including cooling by adiabatic expansion, in view of the teaching of Adams or Hirose for better heating and cooling effect of the mixture product. In regard to claim 8, the use of these devices and methods for use in a well known process would have been a mere engineering application. More importantly, Fagrell also shows the use of its device for organic synthesis (see page 1, line 11-16).

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5. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fagrell (WO 00/36880) or Di Martino et al (US 5,393,492), in view of Adams et al (US 6,060,288) or Hirose (JP 4-126060) as applied to claims 1-3 and 8 above, and further in view of Brown et al (US 4,211,163) (newly cited).

Fagrell or Di Martino combined with Adams or Hirose shows every feature as claimed except for the details of the adiabatic cooling device. Brown shows a heat-cooking device with an adiabatic cooling device routinely including expanding vessel, tube and valve (see Figures 1 and 2 and col. 6, line 32 – col. 7, line 34). It would have been obvious to an ordinary skill in the art at the time of invention to modify Fagrell or Di Martino combined with Adams or Hirose to use a device including an expansion vessel, a tubing and a valve as an adiabatic cooling device as shown by Brown as such is well known.

6. Claims 4-7 are further rejected under 35 U.S.C. 103(a) as being obvious over Brown et al (US 4,211,163), in view of Miller (US 3,721,013) or Loof (US 4,488,361) (newly cited).

Brown shows a heat-cooking device of wood material with a heating device including a heating chamber 10 (the claimed reaction chamber) and an adiabatic cooling device routinely including expanding vessel, tube and valve (see Figures 1 and 2 and col. 6, line 22 – col. 7, line 34). It does not show the type of heating device as claimed. Miller shows that it is well known to use radio frequency or microwave heating with circulated heated air for heating wood material (see Figures 1 –3, the abstract and col. 6, lines 56-61). Loof also shows the use of microwave energy for heat-treating wood products (see col. 2, line 58 – col. 6, line 19). It would have been obvious to an ordinary skill in the art at the time of invention to modify Brown to choose any

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well known radio frequency or microwave heating device for heating wood products as such is advantageous as taught by Miller or Loof. It is pointed out that claim 4 is essentially an apparatus claim, the fact that it depends on a method claim does not affect its scope. That is, the claimed "reaction mixture" is only an intended use and forms no part of the claimed structure.


7. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, the broadly worded claimed method only differs from the prior art with the use of "adiabatic". However, such "adiabatic cooling" is one of well known types of cooling in heat exchanging. To choose any well known types of cooling would have been within the skill of an ordinary artisan in view of the art of record. Furthermore, the apparatus claim 4 is no more than any microwave heating device with an adiabatic cooling device, such would have been an obvious combination as shown above.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H. Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Philip H Leung  
Primary Examiner  
Art Unit 3742

P.Leung/pl  
12-25-2007